

1 less than 0.5 mm on the cornea surface.

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3 8. A method of claim 1, in which said beam spot controller consists of at least one focusing
4 spherical lens to couple the said laser beam to the said fiber delivery unit.

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6 9. A method of claim 1, wherein said fiber delivery unit consists of an optical fiber having a length
7 of about (0.5 - 1.5) meter and core diameter of about (0.2 - 0.8) mm and a hand piece connected
8 to a fiber tip.

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10 10. A method of claim 9, wherein said fiber delivery unit is substantially transparent to the
11 wavelength of the said laser beam.

12
13 11. A method of claim 9, wherein said fiber tip is made of a similar material as that of the fiber
14 and is made in one of the following shapes to focus the said laser beam onto the treated sclera
15 area of the eye: conical, spherical, 90-degree reflecting angle and flat end.

16
17 12. A method of claim 9, wherein said fiber tip focuses the said laser beam onto the treated area
18 of the eye at a spot size of about (0.1 - 0.5) mm in diameter.

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20 13. A method of claim 9, wherein said fiber tip is made in a cylinder shape to focus the said laser
21 beam onto the treated area of the eye at a line shape having a dimension of about (0.1 - 0.4) in
22 width and (0.5 - 4.0) mm in length.

23
24 14. A method of claim 9, wherein said fiber tip is operated in a contact-mode to ablate the sclera
25 tissue to a depth of about (300 - 800) microns.

26
27 15. A method of claim 9, wherein said fiber tip is operated in a non-contact mode to ablate the
28 sclera tissue to a depth of about (300 - 800) microns.

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30 16. A method of claim 1, wherein said fiber delivery unit is controlled by the surgeon to perform a
31 predetermined patterns outside the limbus of the cornea by manually moving the fiber tip in the
32 radial direction of the cornea.

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34 17. A method of claim 1, wherein said fiber delivery unit is attached to a scanning device to
35 perform said predetermined patterns outside the limbus of the cornea and scan said laser beam
36 along the radial direction of the cornea.

37
38 18. A method of claim 1, wherein said predetermined patterns outside the limbus of the cornea
39 defined by the area between two circles having radius of about 5.0 mm and 9.0 mm, respectively.

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41 19. A method of claim 1, wherein said predetermined pattern includes at least 3 radial lines
42 around the area outside the corneal limbus.

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44 20. A method of claim 1, wherein said predetermined pattern includes at least two rings formed
45 by 8 circular spots having a diameter of about (0.2 - 0.5) mm around the area outside the corneal
46 limbus.